

TRC Environmental Corporation  
30 Patewood Drive, Suite 300  
Patewood Plaza One  
Greenville, SC 29615

Main 864.281.0030  
Fax 864.281.0288

## Project Technical Memorandum

**To:** Ms. Patricia Simmons-Pierre (USEPA RPM)

**From:** Karen C. Saucier, Ph.D. (TRC Project Coordinator)  
Barry Culp (TRC Project Manager)

**Subject:** Supplemental Wetland Area Sampling Work Plan  
Dayco Corporation/L.E. Carpenter Superfund Site (NJD002168748)

**Date:** September 30, 2014; Revised October 21, 2014

**CC:** Mr. Anthony Cinque (NJDEP Case Manager)  
Mr. Ernie Schaub (LEC Project Manager)

**Project No.:** 196479.2014.0000

---

The following technical memorandum presents TRC Environmental Corporation's (TRC) proposed work plan for the sampling of temporary pore water well points, surface water, and sediment to further assess the groundwater-surface water interface (GSI) water quality in the wetland area (i.e., the MW-30 area) of the Dayco Corporation/L.E. Carpenter Superfund Site in Wharton, New Jersey. USEPA requested additional evaluation of water quality conditions entering the Rockaway River near monitoring wells MW-33s, MW-34s, and MW-35s during a conference call on September 9, 2014. The intent of this assessment is to assess concentrations of site constituents of concern (COCs) at the Rockaway River GSI transition zone near these monitoring wells.

### Background

The revised RA Work Plan Addendum (TRC, July 2011, revised October 2011) set forth a supplemental investigation in the MW-30 area. The data collected from the MW-30 Area focused RI, as presented in the MW-30 Remedial Investigation (RI) Summary and Bench-scale Treatability Study Results (TRC, April 26, 2012), was used to further characterize and delineate potential free-phase residual organic COCs in soils and dissolved-phase organic COCs in groundwater. Based on the results of the focused remedial investigation and subsequent bench scale study, TRC recommended that a phytoremediation solution be further evaluated for the

MW-30 area. TRC received an email from USEPA on August 23, 2012, approving the MW-30 *Remedial Investigation (RI) and Bench-scale Treatability Study Results Memorandum* and requesting that the phytoremediation pilot commence.

The phytoremediation pilot study planting was completed in March 2013 with the installation of fifty-one (51) trees in two separate areas of the MW-30 area that displayed residual concentrations of DEHP in soil and groundwater.

In conjunction with the phytoremediation pilot, USEPA requested evaluation of water quality conditions downgradient of the pilot area, between monitoring well MW-35 and the Rockaway River. Due to access limitations with tracked equipment and frequent flooding of the Rockaway River in that portion of the wetlands, installation of permanent monitoring wells was deemed not practicable. Therefore, it was agreed that temporary well points be utilized to collect point-in-time groundwater samples from the shallow portion of the aquifer. An additional round of point-in-time samples from temporary well points were to be collected during the 4Q14 event as described in the previously submitted work plan, included for reference as Attachment 1.

The following plan presents the methodology for pore water well point sample installation sample collection, as well as additional surface water and sediment sample collection. The supplemental sampling described in this work plan will be conducted in conjunction with the 4Q14 routine sampling event for groundwater and surface water, which includes the follow-up sampling of the eight temporary well points in the wetland area.

Once data from the planned supplemental sampling is available and presented to the agencies in the context of previously collected data, LE Carpenter will schedule an on-site meeting with the agencies to discuss potential delineation data gaps in the eastern portion of the wetland area. Additional data collection, as necessary, will be addressed in a separate work plan submittal.

### **Temporary Pore Water Well Point Installation and Sampling**

Eleven (11) temporary stainless steel well points (3/4" Solinst Model 615S) will be advanced into the Rockaway River sediment immediately adjacent to the shore near monitoring wells MW-33s, MW-34s, and MW-35s. Proposed locations of the pore water well points are displayed on Figure 1 (Attachment 2).

Consistent with the original pore water scope outlined in the RA Work Plan Addendum (TRC, July 2011, revised October 2011), well points will be installed with the top of screen approximately 2 feet below the sediment surface using a manual slide hammer. The total depth and location may vary depending on subsurface impediments (rocks, etc.) encountered during

the advancement of the well points. To avoid clogging or smearing of the screen during installation, a shielded version of the Solinst 615 drive-point will be utilized (Attachment 3).

Sampling of the well points will be performed in accordance with the approved Field Sampling Procedures Manual. Similar to the conditions at adjacent wetland monitoring wells (MW-31s, MW-32s, MW-33s, MW-34s, MW-35s), low recharge is anticipated in the pore water temporary well points. Pore water will be purged as practical from the well points with a peristaltic pump at a slow rate to minimize turbidity. Well points will be allowed to recover for approximately one day. Following recovery, filtered and unfiltered pore water samples will be collected from each location utilizing a mini bladder pump and submitted for analysis of BTEX and DEHP.

Upon completion of the temporary pore water well point monitoring and reporting, the temporary well points will be removed and each hole will be abandoned. Well point samplers will be decontaminated and retained for use in subsequent sampling.

### Surface Water Sampling

Ten (10) Rockaway River surface water samples will be collected in addition to the four Rockaway River surface water routinely collected in the quarterly sampling program. Seven (7) of the supplemental locations will be adjacent to the shore and be co-located with the proposed pore water sample locations described above. Three (3) additional surface water samples will be offset from existing surface water sampling locations into the Rockaway River. These mid-channel locations will be co-located with mid-channel sediment samples discussed in the following section. Proposed locations of the surface water sample locations are displayed on Figure 1 (Attachment 2).

Collection of surface water samples will be performed in accordance with the approved Field Sampling Procedures Manual and submitted for analysis of BTEX and DEHP.

### Sediment Sampling

Rockaway River sediment samples will include a “targeted” sampling approach with sample locations offset from existing surface water sampling locations into the mid-channel of the Rockaway River. Proposed locations of the sediment sample locations are displayed on Figure 1 (Attachment 2). Consistent with the RA Work Plan Addendum (TRC, July 2011, revised October 2011), sediment sampling procedures will consist of:

**Sampling Locations-** Three sediment samples will be collected in the mid-channel of the Rockaway River to supplement existing sediment characterization information. The sediment samples will be located offset from the current surface water sample locations SW-R-1, SW-R-2, and SW-R-3. Proposed locations of the sediment sample locations are displayed on Figure 1 (Attachment 2). Mid-channel sediment locations will be field adjusted, as necessary, to target areas of sediment accumulation.

**Sampling Procedures-** A sample of the river sediment may be collected using a variety of methods and equipment depending on the conditions encountered. Specifically, Site conditions include the preponderance of large cobbles and gravel, which are neither conducive nor appropriate for sediment testing purposes. Sediment samples will either be collected directly using a hand held device such as a shovel, trowel, or auger; or using a device such as a hand corer device. Each sediment sample will have two target sampling intervals collected at 0–0.5 feet below the bottom of the river, depending on the presence of sediment. Sediment will be transferred from the sampling device directly to the appropriate sample container(s) for laboratory analysis for BTEX. Field homogenization will be performed as necessary for the DEHP sample aliquot to achieve the appropriate volume of fine-grained sample required by the laboratory.

**Field Measurements and Observations-** Field parameters of the overlying water (temperature, pH, DO, and conductivity) will be collected as part of the sediment sampling as well as sediment sample characteristics (water depth, soil penetration depth, any problems encountered, percent recovery, description based on feel, *etc.*).

**Laboratory Analysis-** Shallow (0–0.5 feet) sediment samples will be analyzed for Site organic COCs (BTEX and DEHP). Deeper (0.5–2 feet) sediment samples will be extracted, where necessary, and archived for subsequent analysis of Site organic COCs (BTEX and DEHP) pending results from overlying sediments. Sediment samples will also be analyzed for total organic carbon (TOC) and particle grain size.

### Pore Water Well Point, Surface Water, and Sediment Sampling Schedule and Reporting

Temporary pore water well point, additional surface water, and sediment monitoring will be conducted concurrent with the upcoming quarterly monitoring event (4Q14), which also includes the follow-up sampling of the eight temporary well points in the wetland area, to allow direct comparison of data to current and historical results of the existing adjacent monitoring locations. This 4Q event is scheduled for the week of October 20, 2014.

Supplemental pore water, surface water, and sediment monitoring results will be included with the routine Semiannual Report.

### Attachments

Attachment 1	Wetland Area Well Point Sampling Work Plan Dayco Corporation/L.E. Carpenter Superfund Site (NJD002168748). July 25, 2013
Attachment 2	Figure 1: MW-30 Area Temporary Pore Water and Surface Water Proposed Sample Locations
Attachment 3	Solinst Drive-Point Piezometers- Model 615 Data Sheet

**Attachment 1**  
**Wetland Area Well Point Sampling Work Plan Dayco**  
**Corporation/L.E. Carpenter Superfund Site (NJD002168748).**  
**July 25, 2013**

TRC Environmental Corporation  
30 Patewood Drive, Suite 300  
Patewood Plaza One  
Greenville, SC 29615

Main 864.281.0030  
Fax 864.281.0288

## Project Technical Memorandum

**To:** Ms. Patricia Simmons-Pierre (USEPA RPM)

**From:** Karen C. Saucier, Ph.D. (TRC Project Coordinator)  
Barry Culp (TRC Project Manager)

**Subject:** Wetland Area Well Point Sampling Work Plan  
Dayco Corporation/L.E. Carpenter Superfund Site (NJD002168748)

**Date:** July 25, 2013

**CC:** Mr. Anthony Cinque (NJDEP Case Manager)  
Mr. Ernie Schaub (LEC Project Manager)

**Project No.:** 199380.0000.0000

---

The following technical memorandum presents TRC Environmental Corporation's (TRC) proposed work plan for the sampling of temporary well points to further assess the groundwater quality in the wetland area (i.e. the MW-30 area) of the Dayco Corporation/L.E. Carpenter Superfund Site in Wharton, New Jersey. The intent of this assessment is to assess concentrations of site constituents of concern (COCs) downgradient of the installed phytoremediation pilot between monitoring well MW-35 and the Rockaway River and between monitoring well MW-35 and soil borings SB-2 and SB-3.

### Background

The revised RA Work Plan Addendum (TRC, July 2011, revised October 2011) set forth a supplemental investigation in the MW-30 area. The data collected from the MW-30 Area focused RI, as presented in the MW-30 Remedial Investigation (RI) Summary and Bench-scale Treatability Study Results (TRC, April 26, 2012), was used to further characterize and delineate potential free-phase residual organic COCs in soils and dissolved-phase organic COCs in groundwater. Based on the results of the focused remedial investigation and subsequent bench scale study, TRC recommended that a phytoremediation solution be further evaluated for the MW-30 area. TRC received an email from USEPA on August 23, 2012, approving the MW-30

## Wetland Area Well Point Sampling Work Plan

July 25, 2013

Page 2 of 3

*Remedial Investigation (RI) and Bench-scale Treatability Study Results Memorandum* and requesting that the phytoremediation pilot commence.

The phytoremediation pilot study planting was completed in March 2013 with the installation of fifty-one (51) trees in two separate areas of the MW-30 area that displayed residual concentrations of DEHP in soil and groundwater.

In conjunction with the phytoremediation pilot, USEPA requested evaluation of water quality conditions downgradient of the installed phytoremediation pilot between monitoring well MW-35 and the Rockaway River. Due to access limitations with tracked equipment and frequent flooding of the Rockaway River in that portion of the wetlands, installation of permanent monitoring wells was deemed not practicable. Therefore, it was agreed that temporary well points could be utilized to collect point-in-time groundwater samples from the shallow portion of the aquifer.

The following plan presents the methodology for well point sample installation sample collection.

### Temporary Well Point Installation and Sampling

Four (4) temporary stainless steel well points (3/4" Solinst Model 615S) will be advanced into the ground in the wetland area adjacent to and downgradient of MW-35S. An additional four (4) temporary stainless steel well points (3/4" Solinst Model 615S) will be advanced in the wetland area between MW-35S and previous soil borings SB-2 and SB-3. Proposed locations of the well points are displayed on Figure 1 (Attachment 1). Locations will be adjusted accordingly in the field to accommodate the recently installed phytoremediation pilot plantings and other existing obstructions.

The well points will be installed with the top of screen approximately 2 feet below the ground surface using a manual slide hammer. The total depth may vary depending on subsurface impediments (rocks, etc) preventing the advancement of the well points. To avoid clogging or smearing of the screen during installation, a shielded version of the Solinst 615 drive-point is proposed (Attachment 2).

Sampling of the well points will be performed in accordance with the approved Field Sampling Procedures Manual. Similar to the adjacent wetland monitoring wells (MW-31s, MW-32s, MW-33s, MW-34s, MW-35s), low recharge of groundwater is anticipated in the temporary well points. Groundwater will be purged from the well points with a peristaltic pump at a slow rate to minimize turbidity. Well points will be allowed to recover for approximately one (1) day. Following recovery, filtered and unfiltered groundwater samples will be collected from each location and submitted for analysis of BTEX and DEHP.



## **Wetland Area Well Point Sampling Work Plan**

July 25, 2013

Page 3 of 3

Upon completion of the temporary well point groundwater monitoring and reporting, the temporary well points will be removed and each hole will be abandoned/ filled with bentonite, as needed. Well point samplers will be decontaminated and retained for use in subsequent sampling.

### **Well Point Monitoring Schedule and Reporting**

Temporary well point monitoring will be conducted concurrent with the upcoming quarterly monitoring event (3Q13) scheduled for the week of July 29, 2013, to allow direct comparison of data to current and historical results of the existing adjacent monitoring locations. A subsequent well point sampling event will be scheduled in 4Q 2014 after the phytoremediation pilot has been in place for at least two growing seasons.

If the wetland area between monitoring wells MW-35 and the Rockaway River is flooded during the scheduled 3Q13 event, the installation and sampling will be postponed until surface conditions improve. Sampling during non-flood conditions is necessary to prevent surface water seepage into the well point samplers.

Separate technical memoranda will be prepared to document groundwater monitoring results from the baseline and subsequent well point sampling events.

### **Attachments**

Attachment 1	Figure 1: MW-30 Area Temporary Well Point Locations
Attachment 2	Solinst Drive-Point Piezometers- Model 615 Data Sheet



Dwg Size: 0.77 Mb  
Plot Date: July 22, 2013  
Plot Time: 6:37 AM

Attached Xrefs:  
Attached Images:  
Layout: FIG01 MW-30 Well Pl Prop

J:\TROLL\Carpenier\196479\196479.0000.01A2.dwg  
Drawing Name: STEHLE, DIANA H  
Drawing Plot Scale: 0.386863

PLOT DATA

Drawing Name: STEHLE, DIANA H  
Drawing Plot Scale: 0.386863

Boring No.	Depth Interval (bgs)	Sample Depth (ft bgs)	Oil In Soil	*DEHP (ppm)
SB-1	0-10	7.5	N	180
	10-15	--	N	--
	15-20	17.5	N	--
	20-25	24.5	N	1.2
SB-2	5-15	5.0	N	170
	15-20	15.0	N	0.86
SB-3	0-10	5.0	N	330
	10-20	11.0	N	98
	10-20	14.5	N	3.7
SB-3-10E	0-10	6.0	N	1,500
	10-15	14.5	N	1.5
	15-20	--	N	--
SB-4	0-10	7.0	N	180
	10-20	11.5	N	1.8
SB-5	0-10	5.5	N	150
	10-20	10.0	N	10
SB-6	0-10	6.5	N	23
	10-20	14.0	N	ND
SB-7	0-5	0.5	N	ND
	5-20	5.0	N	7.2
SB-8	5-15	13.0	N	84
	14.5	N	ND	
SB-8-10E	0-10	7.5	N	ND
	10-20	19.5	N	0.6
SB-9	0-5	0.5	N	ND
	5-15	5.0	N	ND
SB-10	5-10	7.5	N	200
	10-20	19.5	N	1.3
SB-11	0-10	7.5	Y+	4,500
	10-15	14.5	N	31
SB-12	0-10	7.0	Y	--
	9.0	Y+	2,100	
SB-13	10-20	16.5	N	2.2
	0-10	9.5	Y+	700
SB-13-10S	10-30	29.5	N	1.5
	5-25	9.5	N	1,200
SB-14	21.5	N	8.4	
	5-10	9.5	Y+	940
SB-15	10-15	12	Y+	--
	15-25	25	N	--
SB-16	0-10	9.5	Y	--
	10-20	10.5	Y	310
SB-17	20-25	25.0	N	0.49
	0-15	9.5	N	190
SB-18	15-25	24.5	N	2.7
	0-15	7.5	Y	120
SB-19	15-20	19.5	N	0.73
	5-10	7.5	Y	--
SB-20	9.5	Y	590	
	10-20	12.15	Y	--
SB-21	19.5	--	120	
	0.5, 5, 10, 12, 15	Y	--	
SB-22	14	--	240	
	19.5	--	9.9	

## LEGEND

- APPROXIMATE PROPERTY LINE
- FENCE LINE
- TREES
- GROUNDWATER ELEVATION MONITORING WELL LOCATION AND NUMBER (s = shallow, i = intermediate, d = deep)
- PRMP MONITORING WELL LOCATION AND NUMBER (s = shallow, i = intermediate, d = deep)
- SURFACE WATER SAMPLING LOCATION (D = DITCH; R = RIVER)
- SOIL BORING LOCATION (DECEMBER 2011)
- PHYTOREMEDIATION PILOT STUDY AREA
- PORE WATER CONTAMINANTS OF CONCERN EXCEED NJDEP GROUNDWATER QUALITY STANDARDS
- PORE WATER CONTAMINANTS OF CONCERN DO NOT EXCEED NJDEP GROUNDWATER QUALITY STANDARDS

- PA AREA WHERE PCB IMPACTED SOILS WERE EXCAVATED
- C-1 OUTLINE OF 2005 SOURCE REDUCTION AREA AND SUBSURFACE SLURRY MONOLITH
- 630 POST-REMEDIATION GROUND SURFACE ELEVATIONS, CONTOUR INTERVAL = 1 ft.
- ABANDONED SEWER LINE
- 790 ISOCONCENTRATION FOR BIS (2-ETHYLHEXYL) PHTHALATE (DEHP) (PPM) IN SOIL BORING SAMPLES (790 PPM = NJDEP IMPACT TO GROUNDWATER SOIL SCREENING LEVEL)
- GROUNDWATER FLOW DIRECTION
- PHYTOREMEDIATION PILOT STUDY AREA
- PROPOSED TEMPORARY WELL POINT LOCATION
- TEMPORARY WELL POINT WORK PLAN AREA

## NOTES

- BASE MAP DEVELOPED FROM TOPOGRAPHIC SURVEY PROVIDED BY JAMES M. STEWART, INC. LAND SURVEYORS, DRAWING NO. 2793-03.DWG, DATED 02-14-02 AS REVISED 04-10-07 (DRAWING NO. 314907REV.DWG).
- AS DESCRIBED IN THE November 2005 RAR (SEE FIGURE 9 IN THAT REPORT), THE SLURRY MONOLITH AT AND PARALLEL TO THE DRAINAGE CHANNEL DITCH ENDS APPROXIMATELY 10 FEET WEST OF THE ACTUAL WATERS EDGE.
- OIL IN SOIL RESULT NOTES  
N = NON-DETECT FIELD SCREENING KIT  
Y = DIFFUSE OIL DETECTED IN FIELD SCREENING TEST KIT  
Y+ = PRODUCT DETECTED IN FIELD SCREENING KIT

0 60 120  
APPROXIMATE SCALE IN FEET

PROJECT: DAYCO CORPORATION / L.E. CARPENTER SUPERFUND SITE WHARTON, NEW JERSEY		
TITLE: MW-30 AREA WELL POINT WORK PLAN PROPOSED LOCATIONS		
DRAWN BY: SJL/DGS	SCALE: AS INDICATED	PROJ. NO. 196479.0000
CHECKED BY: BC	DATE PRINTED:	FILE NO. 196479.0000.01A2.dwg
APPROVED BY: BC		FIGURE 1
DATE: APRIL 2013		
TRC		1540 Eisenhower Place Ann Arbor, MI 48108 Phone: 734.971.7080 Fax: 734.971.9022

## Stainless Steel Drive-Point Piezometers

### Model 615

The Model 615 Drive-Point Piezometer is designed as an affordable method to monitor shallow groundwater and soil vapor in suitable conditions.

The Drive-Points attach to inexpensive 3/4" (20 mm) NPT steel drive pipe which is widely available through local plumbing and hardware stores.

Solinst Drive-Point Piezometers are most often installed as permanent well points. They can also be used for short term monitoring applications.

High quality samples can be obtained if polyethylene or Teflon® lined tubing is attached to the stainless steel drive point. Groundwater sampling and hydraulic head measurements can be taken within the tubing using small diameter equipment, as described overleaf.

Solinst Drive-Point Piezometers can be driven into the ground with any direct push or drilling technology, including the Manual Slide Hammer shown at right. To avoid clogging or smearing of the screen during installation, a shielded version is also available.



*Model 615 Drive-Point  
and Shielded Drive-Point Piezometer*

## Applications

- Groundwater sampling, including VOCs
- Water level monitoring
- Base flow monitoring in stream beds
- Contaminant plume delineations
- Soil gas sampling
- UST monitoring
- Low cost and minimal disturbance site assessment
- Sparge points



*Installing Piezometers with a  
Manual Slide Hammer*

## High Quality Samples

The Model 615 Piezometer has a stainless steel, 50 mesh cylindrical filter-screen, within a 3/4" (20 mm) stainless steel drive-point body, screen support and a barbed fitting for attachment of sample tubing. Optional heavy-duty extension couplings are also available to create a strengthened and more rugged piezometer.

The inner barbed fitting allows connection of 5/8" OD x 1/2" ID (16 mm x 12 mm) LDPE or Teflon sample tubing. This prevents sample water from contacting the steel extension rods, and maintains high sample integrity, even when inexpensive carbon steel extensions are used.

Ideal for soil vapor sampling. Where an air-tight connection is most desirable, the compression fitting option allows users to attach 1/4" (6 mm) sample tubing directly to the top of the screened portion of the drive-point.

The 615 S shielded drive-point has a single use, 1-1/2" (38 mm) dia. shield to avoid smearing and plugging of the screen during installation. The strengthened connector at the top of the drive-point acts as an annular seal, which avoids contamination from higher levels in the hole.

The 615 N, designed without a tubing barb, is to be used for water level measurements. This saves money and provides better access for Water Level Meters.





## Sampling Within Narrow Diameters

Direct push sampling has quickly become a popular way to obtain groundwater samples. However, sampling within drive-points requires a narrow diameter sampler. Solinst offers several options for this specific sampling application.

### Peristaltic Pump, Model 410

The Peristaltic Pump uses the suction lift principle. Suitable for 1/4" (6 mm) ID or larger diameters. The Peristaltic Pump provides a regulated and steady flow. It works effectively up to 33 ft. (10 m) at sea level.

### WaTerra Pump, Model 404

The WaTerra Pump operates as an inertial pump. A check valve and tubing, is raised and lowered to lift a sample. The SS10 foot valve suits wells as narrow as 1/2" (12 mm) ID and works to depths of 74 ft. (25 m).

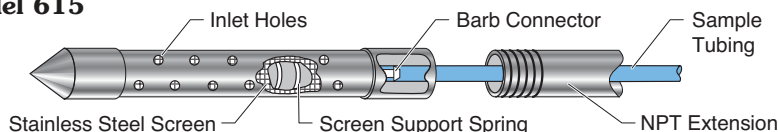
### Miniature Point Source Bailer, Model 429

The 1/2" (12 mm) dia. stainless steel bailer works very well in the 615N. The bottom emptying device permits a regulated, steady flow.

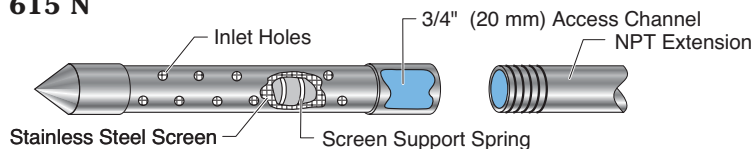
### Hydraulic Head

Water levels can be measured in any of the drive-points described, using a Solinst Model 102, or the Narrow Tape Solinst Model 101 or 101M Water Level Meter for the most accurate hydraulic head measurements.

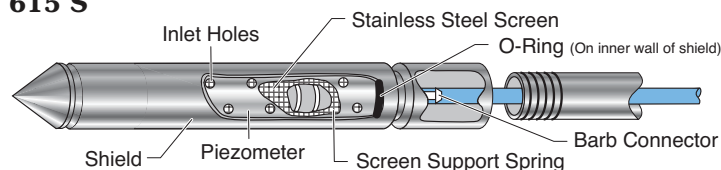
### Model 615



### Model 615 N



### Model 615 S



## Manual Slide Hammer

For the most inexpensive wellpoint installations, the Manual Slide Hammer can be used to install the Solinst Drive-Point Piezometers. The 25lb (11Kg) slide hammer and all other equipment can easily be transported in a car or truck to most sites.

A heavy duty drive head is used, on which the slide hammer impacts, and a tubing by-pass ensures that the tubing does not get damaged during installation.

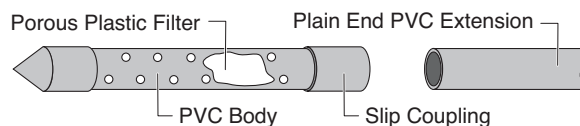
## Couplings

Heavy duty couplings are available for the Model 615 Drive-Point Piezometers. The reinforced shoulder gives added support to the pipe threads, to withstand driving stresses and to give more accurate alignment. The maximum OD is 1.5" (38 mm).

## Depth Limitations

Drive-point piezometers are not suitable for all sites. The depth limitations vary, especially with soil conditions and the drive method used.

### Model 601 Standpipe Piezometer



The Model 601 Standpipe Piezometer, is the least expensive of the piezometer line, and is designed to be placed within an open hole. The pointed PVC tip is suitable for pushing into very loose sands at the base of a borehole, or for backfilling in place within test pits.

The piezometer uses a porous plastic filter set inside a perforated PVC body. It connects to the surface with 3/4" ID PVC riser pipe connected with slip couplings. The piezometer tips come in a variety of lengths.

#### Ideal for:

- Water level monitoring
- Construction control
- Slope stability investigations
- Soil gas monitoring
- Permeability measurement
- De-watering/drainage operations
- Metals monitoring

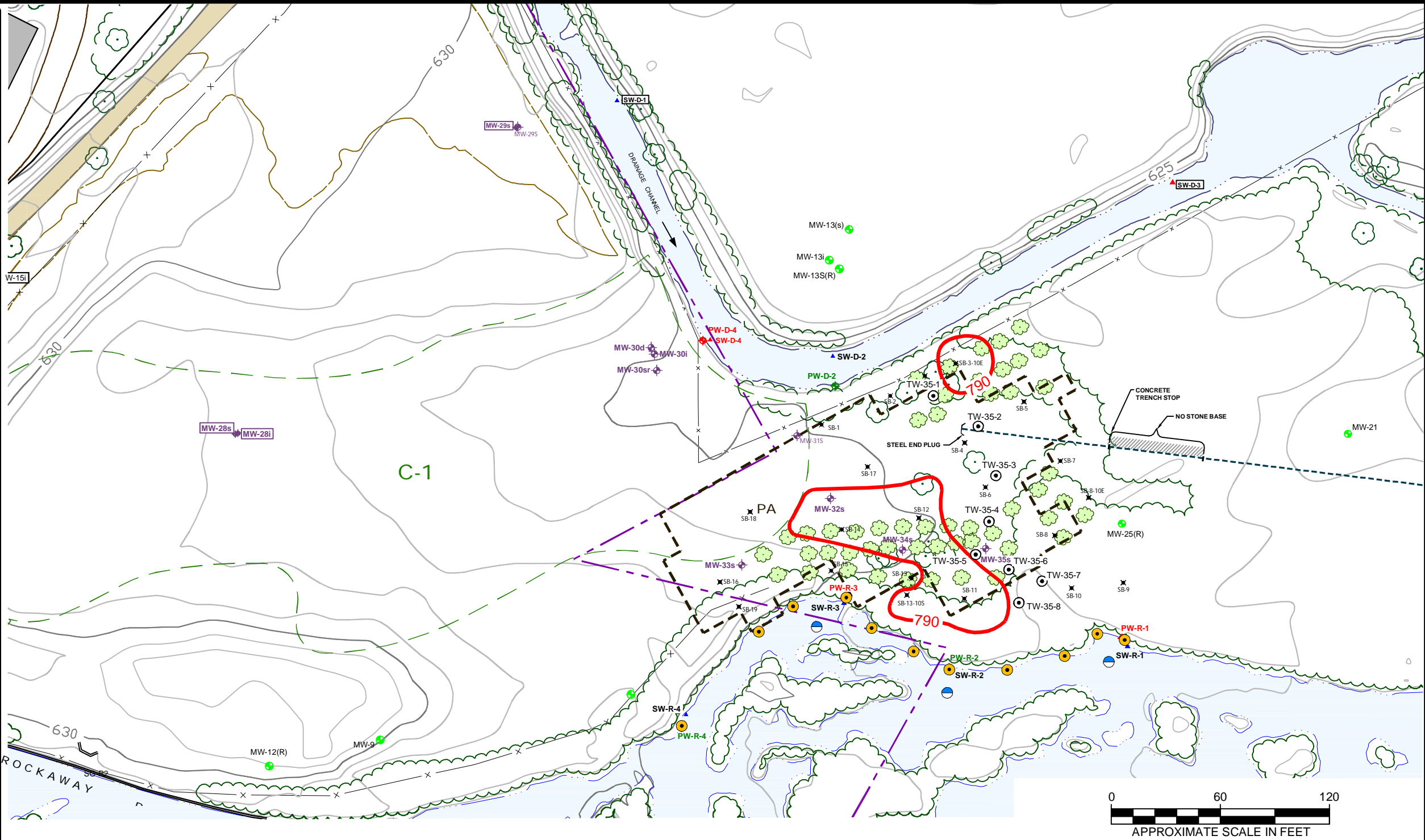
**Attachment 2**  
**Figure 1: MW-30 Area Temporary Pore Water and Surface  
Water Proposed Sample Locations**

Dwg Size: 0.64 Mb  
Plot Date: September 26, 2014  
Plot Time: 7:05 AM

J:\\_TROCLE Carpenter\196479\2014\196479\_2014.01.dwg  
Drawing Name: STEHLE, DIANA H  
Operator Name: 0.386863

FIG01 PW-SW Plan

Boring No.	Depth Interval (bgs)	Sample Depth (ft bgs)	Oil In Soil	*DEHP (ppm)
SB-1	0-10	7.5	N	180
	10-15	--	N	--
	15-20	17.5	N	--
	20-25	24.5	N	1.2
SB-2	5-15	5.0	N	170
	15-20	15.0	N	0.86
SB-3	0-10	5.0	N	330
	10-20	11.0	N	98
	10-20	14.5	N	3.7
SB-3-10E	0-10	6.0	N	1,500
	10-15	14.5	N	1.5
	15-20	--	N	--
SB-4	0-10	7.0	N	180
	10-20	11.5	N	1.8
SB-5	0-10	5.5	N	150
	10-20	10.0	N	10
SB-6	0-10	6.5	N	23
	10-20	14.0	N	ND
SB-7	0-5	0.5	N	ND
	5-20	5.0	N	7.2
SB-8	5-15	13.0	N	84
	10-20	14.5	N	ND
SB-8-10E	0-10	7.5	N	ND
	10-20	19.5	N	0.6
SB-9	0-5	0.5	N	ND
	5-15	5.0	N	ND
SB-10	5-10	7.5	N	200
	10-20	19.5	N	1.3
SB-11	0-10	7.5	Y+	4,500
	10-15	14.5	N	31
SB-12	0-10	7.0	Y	--
	10-20	16.5	N	2.2
SB-13	0-10	9.5	Y+	700
	10-30	29.5	N	1.5
SB-13-10S	5-25	9.5	N	1,200
	21.5	N	8.4	
SB-14	5-10	9.5	Y+	940
	10-15	12	Y+	--
SB-15	15-25	25	N	--
	0-10	9.5	Y	--
SB-16	10-20	10.5	Y	310
	20-25	25.0	N	0.49
SB-17	0-15	9.5	N	190
	15-25	24.5	N	2.7
SB-18	0-15	7.5	Y	120
	15-20	19.5	N	0.73
SB-19	5-10	7.5	Y	590
	10-20	12,15	Y	--
SB-19	19.5	--	120	
	0.5, 5, 10, 12, 15	14	Y	240
	19.5	--	9.9	



## LEGEND

- APPROXIMATE PROPERTY LINE
- FENCE LINE
- TREES
- GROUNDWATER ELEVATION MONITORING WELL LOCATION AND NUMBER (s = shallow, i = intermediate, d = deep)
- PRMP MONITORING WELL LOCATION AND NUMBER (s = shallow, i = intermediate, d = deep)
- SURFACE WATER SAMPLING LOCATION (D = DITCH; R = RIVER)
- SOIL BORING LOCATION
- PHYTOREMEDIATION TREE LOCATION
- ABANDONED SEWER LINE
- PW-D-2 PORE WATER CONTAMINANTS OF CONCERN EXCEED NJDEP GROUNDWATER QUALITY STANDARDS
- PW-D-2 PORE WATER CONTAMINANTS OF CONCERN DO NOT EXCEED NJDEP GROUNDWATER QUALITY STANDARDS
- TEMPORARY WELL LOCATION
- PA AREA WHERE PCB IMPACTED SOILS WERE EXCAVATED
- C-1 OUTLINE OF 2005 SOURCE REDUCTION AREA AND SUBSURFACE SLURRY MONOLITH
- POST-REMEDIATION GROUND SURFACE ELEVATIONS, CONTOUR INTERVAL = 1 ft.
- ISOCONCENTRATION FOR BIS (2-ETHYLHEXYL) PHTHALATE (DEHP) (PPM) IN SOIL BORING SAMPLES (790 PPM = NJDEP IMPACT TO GROUNDWATER SOIL SCREENING LEVEL)
- PROPOSED PORE WATER AND SURFACE WATER SAMPLE LOCATION
- PROPOSED SEDIMENT AND SURFACE WATER SAMPLE LOCATION

## NOTES

- BASE MAP DEVELOPED FROM TOPOGRAPHIC SURVEY PROVIDED BY JAMES M. STEWART, INC. LAND SURVEYORS, DRAWING NO. 2793-03.DWG, DATED 02-14-02 AS REVISED 04-10-07 (DRAWING NO. 314907REV.DWG).
- AS DESCRIBED IN THE November 2005 RAR (SEE FIGURE 9 IN THAT REPORT), THE SLURRY MONOLITH AT AND PARALLEL TO THE DRAINAGE CHANNEL DITCH ENDS APPROXIMATELY 10 FEET WEST OF THE ACTUAL WATERS EDGE.
- OIL IN SOIL RESULT NOTES:
  - N = NON-DETECT FIELD SCREENING KIT
  - Y = DIFFUSE OIL DETECTED IN FIELD SCREENING TEST KIT
  - Y+ = PRODUCT DETECTED IN FIELD SCREENING KIT

PROJECT: DAYCO CORPORATION / L.E. CARPENTER  
SUPERFUND SITE  
WHARTON, NEW JERSEY

TITLE:  
MW-30 PORE WATER AND SURFACE WATER PLAN  
PROPOSED SAMPLE LOCATIONS

DRAWN BY: SJL / DGS / WAB  
CHECKED BY: SP  
APPROVED BY:  
DATE: SEPTEMBER 2014

SCALE:  
AS INDICATED  
DATE PRINTED:

PROJ. NO. 196479.2014  
FILE NO. 196479.2014.01.dwg  
FIGURE 1

TRC

1540 Eisenhower Place  
Ann Arbor, MI 48108  
Phone: 734.971.7080  
Fax: 734.971.9022

# Attachment 3

## Solinst Drive-Point Piezometers- Model 615 Data Sheet



## **Stainless Steel Drive-Point Piezometers**

### **Model 615**

The Model 615 Drive-Point Piezometer is designed as an affordable method to monitor shallow groundwater and soil vapor in suitable conditions.

The Drive-Points attach to inexpensive 3/4" (20 mm) NPT steel drive pipe which is widely available through local plumbing and hardware stores.

Solinst Drive-Point Piezometers are most often installed as permanent well points. They can also be used for short term monitoring applications.

High quality samples can be obtained if polyethylene or Teflon® lined tubing is attached to the stainless steel drive point. Groundwater sampling and hydraulic head measurements can be taken within the tubing using small diameter equipment, as described overleaf.

Solinst Drive-Point Piezometers can be driven into the ground with any direct push or drilling technology, including the Manual Slide Hammer shown at right. To avoid clogging or smearing of the screen during installation, a shielded version is also available.



*Model 615 Drive-Point  
and Shielded Drive-Point Piezometer*

## **Applications**

- Groundwater sampling, including VOCs
- Water level monitoring
- Base flow monitoring in stream beds
- Contaminant plume delineations
- Soil gas sampling
- UST monitoring
- Low cost and minimal disturbance site assessment
- Sparge points



*Installing Piezometers with a  
Manual Slide Hammer*

## **High Quality Samples**

The Model 615 Piezometer has a stainless steel, 50 mesh cylindrical filter-screen, within a 3/4" (20 mm) stainless steel drive-point body, screen support and a barbed fitting for attachment of sample tubing. Optional heavy-duty extension couplings are also available to create a strengthened and more rugged piezometer.

The inner barbed fitting allows connection of 5/8" OD x 1/2" ID (16 mm x 12 mm) LDPE or Teflon sample tubing. This prevents sample water from contacting the steel extension rods, and maintains high sample integrity, even when inexpensive carbon steel extensions are used.

Ideal for soil vapor sampling. Where an air-tight connection is most desirable, the compression fitting option allows users to attach 1/4" (6 mm) sample tubing directly to the top of the screened portion of the drive-point.

The 615 S shielded drive-point has a single use, 1-1/2" (38 mm) dia. shield to avoid smearing and plugging of the screen during installation. The strengthened connector at the top of the drive-point acts as an annular seal, which avoids contamination from higher levels in the hole.

The 615 N, designed without a tubing barb, is to be used for water level measurements. This saves money and provides better access for Water Level Meters.





## Sampling Within Narrow Diameters

Direct push sampling has quickly become a popular way to obtain groundwater samples. However, sampling within drive-points requires a narrow diameter sampler. Solinst offers several options for this specific sampling application.

### Peristaltic Pump, Model 410

The Peristaltic Pump uses the suction lift principle. Suitable for 1/4" (6 mm) ID or larger diameters. The Peristaltic Pump provides a regulated and steady flow. It works effectively up to 33 ft. (10 m) at sea level.

### WaTerra Pump, Model 404

The WaTerra Pump operates as an inertial pump. A check valve and tubing, is raised and lowered to lift a sample. The SS10 foot valve suits wells as narrow as 1/2" (12 mm) ID and works to depths of 74 ft. (25 m).

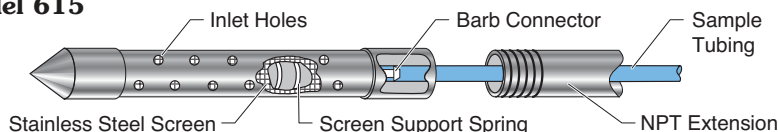
### Miniature Point Source Bailer, Model 429

The 1/2" (12 mm) dia. stainless steel bailer works very well in the 615N. The bottom emptying device permits a regulated, steady flow.

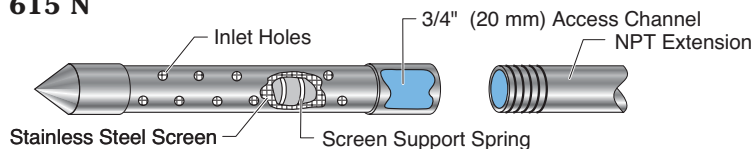
### Hydraulic Head

Water levels can be measured in any of the drive-points described, using a Solinst Model 102, or the Narrow Tape Solinst Model 101 or 101M Water Level Meter for the most accurate hydraulic head measurements.

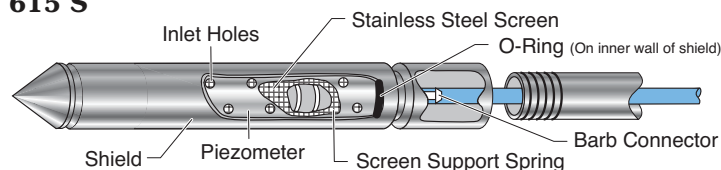
### Model 615



### Model 615 N



### Model 615 S



## Manual Slide Hammer

For the most inexpensive wellpoint installations, the Manual Slide Hammer can be used to install the Solinst Drive-Point Piezometers. The 25lb (11Kg) slide hammer and all other equipment can easily be transported in a car or truck to most sites.

A heavy duty drive head is used, on which the slide hammer impacts, and a tubing by-pass ensures that the tubing does not get damaged during installation.

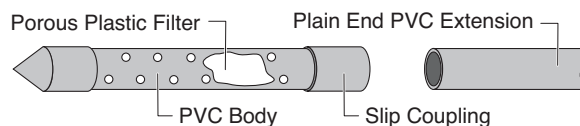
## Couplings

Heavy duty couplings are available for the Model 615 Drive-Point Piezometers. The reinforced shoulder gives added support to the pipe threads, to withstand driving stresses and to give more accurate alignment. The maximum OD is 1.5" (38 mm).

## Depth Limitations

Drive-point piezometers are not suitable for all sites. The depth limitations vary, especially with soil conditions and the drive method used.

### Model 601 Standpipe Piezometer



The Model 601 Standpipe Piezometer, is the least expensive of the piezometer line, and is designed to be placed within an open hole. The pointed PVC tip is suitable for pushing into very loose sands at the base of a borehole, or for backfilling in place within test pits.

The piezometer uses a porous plastic filter set inside a perforated PVC body. It connects to the surface with 3/4" ID PVC riser pipe connected with slip couplings. The piezometer tips come in a variety of lengths.

#### Ideal for:

- Water level monitoring
- Construction control
- Slope stability investigations
- Soil gas monitoring
- Permeability measurement
- De-watering/drainage operations
- Metals monitoring